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EXAMINER	
ABDIN, SHAHEDA A	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/800,406	Applicant(s) YAO, XIAOTIAN STEVE	
	Examiner Shaheda A. Abdin	Art Unit 2609	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 10800406.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 19-21 is/are allowed.

6)☒ Claim(s) 11-18, 22-25, 30 is/are rejected.

7)☒ Claim(s) 26-29 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 07/09/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg et al (US Patent No: 5153676) in view of Myatt et al. (US Pub. No: 2003/0035120 A1).

As shown in fig. 1 Berg et al. discloses a device, comprising:

(1) Regarding claim 1:

a fiber loop (16) (column 5, lines 50, fig. 1);

an optical coupler (14, fig. 1) in said fiber loop to couple input light into said fiber loop (16) as two counter-propagating waves in said loop and to couple light in said loop out as an output beam (column 4, lines 5-10);

an optical detector (20, photodetector, fig. 1) to receive said output beam to produce a detector signal (column 4, lines 5-17, column 5, lines 60, fig. 1);

a circuit (signal generator 26, fig. 1) to process said detector signal to produce an output indicative of a signal-to-noise ratio or a degree of polarization (degree of polarization, column 13, lines 1-2) in said input light from said maximum and minimum power levels (column 19, lines 17-32).

Berg et al. discloses all of the subject matter except a polarization device.

However Myatt et al. in the same field of endeavor discloses a polarization device (348, polarization scrambler, fig. 21) ([0107], lines 21-22, [0104], lines 27, fig21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization device (348) as taught by Myatt et al. into the system of Berg et al. so that a polarization device can change polarization of light in the fiber loop to achieve a maximum power level and a minimum power level in the output beam. In this configuration the system will have improved polarization with better accuracy and higher signal to noise ratio.

(2) Regarding claim 2:

Berg et al. further discloses wherein said circuit (signal generator 26, fig. 1) controls to systematically change said polarization to produce said maximum and said minimum power levels in said output beam (column 19, lines 17-32).

(3) Regarding claim 3:

Berg et al. discloses all of the subject matter except a polarization scrambler.

However, Myatt et al. in the same field of endeavor discloses a polarization scrambler (348, fig. 21) ([0107] lines 21-22, [0104], lines 27, fig. 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization scrambler (348) as taught by Myatt et al. into the system of Berg et al. so that a polarization scrambler randomly changes the polarization. In this configuration the system will be

eliminating polarization fading, thus improved polarization with better accuracy and higher signal to noise ratio.

(4) Regarding claim 4:

Berg et al. discloses all of the subject matter except a tunable optical filter

However, Myatt et al. in the same field of endeavor discloses a tunable optical filter (402) ([0108], lines 4-8 and fig 29).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a tunable filter (402) as taught by Myatt et al. into the system of Berg et al. so that a tunable filter the input light and direct filtered input light to the optical coupler for coupling into the fiber loop. In this configuration the system will have accurate, channel monitoring which will be compact, and inexpensive.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luscombe et al. (US patent No:6731389) in view of Han et al. (US Pub. No: 2003/0156776 A1).

As shown in fig. 1 Luscombe et al. discloses a device, comprising:

Regarding claim 5:

a polarization scrambler (24) to scramble polarization of received light to produce output light in a controlled manner in response to a control signal (column 4, lines 13-26);

a polarizer (30) to receive light from to produce a transmitted beam (column 4, lines 13-26);

an optical detector (34) to receive said transmitted beam to produce a detector signal (column 4, lines 13-26);

Luscombe et al. discloses all of the subject matter except control unit.

However Han et al. in the same field of endeavor discloses a control unit (112, main controller, fig. 1) ([0052]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a control unit (112) as taught by Han et al. into the system of Luscombe et al. so that a control unit can produce the control signal to the polarization scrambler and to process the detector signal to produce an output indicative of a signal - to noise ratio or a degree of polarization in the input light. In this configuration the system will have minimum disruption, improved polarization with better accuracy, high speed optical transmission and higher signal to noise ratio.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luscombe et al. as modified by Han et al. discloses in claim 5 above, and further in view of Myatt et al. (US Pub. No: 2003/0035120 A1).

Regarding claim 6:

Lusconmbe et al. as modified by Han et al. discloses all of the subject matter except a tunable optical filter.

However, Myatt et al. in the same field of endeavor discloses a tunable optical filter (402) ([0108], lines 4-8 and fig 29).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a tunable optical filter (402) as taught by

Myatt et al. into the system of Luscombe et al. so that a tunable optical filter can filter the received light and direct filtered light to the polarization scrambler. In this configuration the system will have accurate channel monitoring which will be compact, and inexpensive.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. (US Pub. No: 2001/0052981) in view of Nolan et al. (US 6229937) and further in view of Jung et al. (US Pub. No: 2003/0206689).

As shown in fig. 3 Chung et al. discloses a device, comprising:

Regarding claim 7:

a polarization device (in fig. 3) to adjust polarization of received light to produce output light to find a maximum power level and a minimum power level (OSNR) of each WDM channel of different WDM channels in said received light ([0009], lines 4-10, also see the abstract, lines);

a WDM demultiplexer (56, fig. 3) to receive said output light and to separate different WDM channels in said output light ([0061]);

a circuit (46, fig. 5) to process output signals to produce an output for each WDM channel indicative of a signal-to-noise ratio or a degree of polarization in said each WDM channel from said maximum power level and said minimum power level ([0058], lines 15-21, fig. 5).

Chung et al. discloses all of the subject matter except (1) a plurality of polarizers. (2) a plurality of optical detectors.

(1) Regarding item 1:

However, Nolan et al. in the same field of endeavor disclose a plurality of Polarizers (18, Half-wave retarder(HWR), $\lambda/2$, fig. 5) (column 5, lines 40-48).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of polarizers as taught by Nolan et al. into the system of Chung et al. so that a plurality of polarizers in optical paths of the different WDM channels can be placed respectively. In this configuration the system will have an optical transmission link for high data rate multiplex systems which will suppress the non linear effects in the system and improve higher signal to noise ratio.

(2) Regarding item 2:

Jung et al. in the same field of endeavor disclose a plurality of optical detectors (300) ([0025] fig. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of optical detectors to respectively receive the different WDM channels after transmission through the polarizer. In this configuration the system will enhance the efficiency of operation, administration, and maintenance of wavelength division multiplexed optical communication networks.

6. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over chung in view of Nolan and Jung as applied to claim 7 above, and further in view of Luscombe (US patent No:6731389).

(1) Regarding claims 8, 10 and 11:

Chung as modified by Nolan and Jung discloses all of the subject matter above in claim 7 except a polarization scrambler.

However Luscombe et al. in the same field of endeavor discloses a polarization scrambler (24) (column 4, lines 13-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization scrambler as taught by Luscombe into the system of Chung et al. so that a polarization scrambler can randomly changes the polarization in searching for the maximum power level and the minimum power level. In this configuration the system will be preventing the polarization fading with reduced cost . Furthermore, the system will have less complexity in operation.

(2) Regarding claims 9 and 12:

Chung et al. further discloses wherein said polarization device is a polarization controller (referring to FIG. 4,and 5 the screen of the oscilloscope 45 a maximum voltage and a minimum voltage are inputted to a computer 46 which measures the optical signal-to-noise ratio from the maximum voltage and minimum voltage. Accordingly, the computer 46 substitutes the maximum power and minimum power obtained from the maximum voltage and minimum voltage inputted thereto into [Equation 2], [Equation 3] and [Equation 4] to measure the optical signal-to-noise ratio.). ([0058]).

7. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al (US Pub. No: 2001/0052981) in view of Chen et al. (6900932) and further in view of Jung et al. (US Pub. No: 2003/0206689).

As shown in fig. 3 Chung et al. discloses a device, comprising:

(1) Regarding claim 13:

a polarization device (in fig. 3) to adjust polarization of received light to produce output light to find a maximum power level and a minimum power level (OSNR) of each WDM channel of different WDM channels in said received light ([0009], lines 4-10, also see the abstract, lines);

an optical polarizer (41, fig. 4) to receive said output light to produce a beam ([0058], lines 6-7);

an optical diffraction grating (56, waveguide grating (WGR), fig. 5) to diffract said beam into spatially separated different WDM channels ([0061]);

a circuit (46, fig. 5) to process output signals from said optical detectors to produce an output for each WDM channel indicative of a signal-to-noise ratio or a degree of polarization in said each WDM channel ([0058], lines 15-21, fig. 5).

Chung et al. discloses all of the subject matter except (1) a lens (2) a plurality of optical detectors.

(1) Regarding item 1:

However, Chen et al. in the same field of endeavor discloses a lens (470) [(0032], lines 1-3, fig 4).

Therefore, it would have been obvious to a per son to incorporate a lens

(370) as taught by Chen into the system of Chung so that the lens can transmit the different WDM channel. In this configuration the system will have high transmission bit-rate and high information carrying capability with high throughput.

(2) Regarding item 2:

Jung et al. in the same field of endeavor discloses a plurality of detectors (300) ([0025] fig. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of optical detectors to respectively receive the different WDM channels from the lens. In this configuration the system will enhance the efficiency of operation, administration, and maintenance of wavelength division multiplexed optical communication networks.

(2) Regarding claim 15:

Chung et al. further discloses wherein said polarization device is a polarization controller (referring to FIG. 4,and 5 the screen of the oscilloscope 45 a maximum voltage and a minimum voltage are inputted to a computer 46 which measures the optical signal-to-noise ratio from the maximum voltage and minimum voltage. Accordingly, the computer 46 substitutes the maximum power and minimum power obtained from the maximum voltage and minimum voltage inputted thereto into [Equation 2], [Equation 3] and [Equation 4] to measure the optical signal-to-noise ratio.). ([0058]).

Regarding claim 14 :

Chung as modified by Nolan and Jung discloses all of the subject matter above in claim 10 except a polarization scrambler.

However Luscombe et al. in the same field of endeavor discloses a polarization scrambler (24) (column 4, lines 13-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization scrambler as taught by Luscombe into the system of Chung et al. so that a polarization scrambler can randomly changes the polarization in searching for the maximum power level and the minimum power level. In this configuration the system will be preventing the polarization fading with reduced cost . Furthermore, the system will have less complexity in operation.

8. Claims 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al (US Pub. No: 2001/0052981) in view of Liu et al. (US 6552833) and further in view of Jung et al. (Us Pub. No 2003/0206689).

(1) Regarding claim 16:

As shown in fig. 3 Chung et al. discloses a device, comprising:

a polarization device (in fig. 3) to change polarization of received light to produce output light to find a maximum power level and a minimum power level (OSNR) of each WDM channel of different WDM channels in said received light ([0009], lines 4-10, also see the abstract, lines);

a WDM demultiplexer (56) to receive said output light to separate different

WDM channels in said output light ([0061]);

a control unit (46, fig. 5) to produce said control signal output for each WDM channel indicative of a signal-to-noise ratio or a degree of polarization in said each WDM channel (referring to FIG. 4,and 5 the screen of the oscilloscope 45 a maximum voltage and a minimum voltage are inputted to a computer 46 which measures the optical signal-to-noise ratio from the maximum voltage and minimum voltage. Accordingly, the computer 46 substitutes the maximum power and minimum power obtained from the maximum voltage and minimum voltage inputted thereto into [Equation 2], [Equation 3] and [Equation 4] to measure the optical signal-to-noise ratio.). ([0058]).

Chung et al. discloses all of the subject matter except (1) a plurality of polarization beam splitter (2) a plurality of filters (3) plurality of pairs of optical detectors.

(1) Regarding item 1:

However, Liu et al. in the same field of endeavor discloses (1) a plurality of polarization beam splitter (522 a, fig. 5) (column 5, lines 50-52, column 6, lines 40-48).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of polarization beam splitter as taught by Liu et al. into the system of Chung et al. so that a plurality of polarization beam splitter can placed in optical pats of the different WDM

channels, respectively, wherein each polarization beam splitter splits a corresponding WDM channel into two monitor beams that are orthogonally polarized. In this configuration the system will have optimally, moderation of dispersion in all channel with better quality communication over the link.

(2) Regarding item 2:

Liu et al. in the same field of endeavor further discloses (2) a plurality of filters (742, 744, fig. 7) (column 5, lines 57-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of filter as taught by Liu et al. into the system of Chung et al. so that a plurality of filters can be disposed in one of the two monitor beams for the different WDM channels, respectively, each operable to produce a difference in power between noise power levels in said two monitor beams for each WDM channel without affecting signal power levels in said each WDM channel in said two monitor beams. In this configuration the system will substantially continuous and uninterrupted signal with low cross talk. Furthermore, the system will have better signal to noise ratio.

(3) Regarding item 3:

Jung et al. in the same field of endeavor discloses a plurality of pairs of detectors (300) ([0025] fig. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of pairs of optical detectors (300) as taught by Jung into the system of Chung so that a plurality of pairs of

optical detectors can be provided for different WDM channels, wherein two optical detectors in each pair can be positioned to respectively receive the two monitor beams for the WDM channel. In this configuration the system will enhance the efficiency of operation, administration, and maintenance of wavelength division multiplexed optical communication networks.

(2) Regarding claim 18:

Chung et al further discloses wherein said polarization device is a polarization controller (46, fig. 5) ([0058]).

9 Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung as modified by Liu and Jung, as describe in claim 16 above and further in view of Myat et al. (Us Pub. No 2003/0206689).

Regarding claim 17:

Chung et al discloses all of the subject matter except a polarization scrambler.

However, Myatt et al. in the same field of endeavor discloses a polarization scrambler (348, fig. 21) ([0107] lines 21-22, [0104], lines 27, fig. 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization scrambler (348) as taught by Myatt et al. into the system of chung et al. so that a polarization scrambler randomly changes the polarization in searching for the maximum and the minimum power levels. In this configuration the system will be eliminating

polarization fading, thus improved polarization with better accuracy and higher signal to noise ratio.

10. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luscombe et al. (US patent No:6731389) in view of Berg et al. (Us Patent No: 5153676).

Luscombe et al. discloses a device 18, comprising:

(1) Regarding claim 22:

A device, comprising:

a polarization element (polarization scrambler (24) operable to adjust optical input light (column 4, lines 13-26);

a polarizer (30) to receive light from said polarization of element to produce a transmitted beam (column 4, lines 13-26);

an optical detector (34) to receive said transmitted beam from said polarizer (column 4, lines 13-26);

Luscombe et al. discloses all of the subject matter except a signal processing circuit.

However Berg et al. in the same field of endeavor discloses a signal processing circuit (signal generator 26, fig. 1) (column 19, lines 17-32).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a signal processing circuit (26) as taught Berg et al. into the system of Luscombe et al. so that a signal processing circuit can process output of the optical detector to extract information on a state of polarization of the input light. In this configuration the system will have

improved polarization with better accuracy, minimized cross-talk, high speed optical transmission and higher signal to noise ratio.

(2) Regarding claim 23:

Luscombe et al. further discloses wherein said polarization element (polarization scrambler 24) is a polarization element is a polarization controller (column 4, lines 13-26).

11. Claims 24-25 are rejected under 35 U.S.C 103(a) as being unpatentable over Luscombe et al. as modified by Berg et al. in claim 22 above and further in view of Han et al. (US. Pub. No: 20030156776).

(1) Regarding claim 24:

Luscombe et al. as modified by Berg et al. in claim 22 above discloses all of the subject matter except a rotatable quarter-wave plate.

However Han et al. in the same field of endeavor discloses a rotatable quarter-wave plate (103, fig. 2) (a control signal is transmitted to the rotation command applying unit 221, and the rotation command applying unit 221 applies a rotation command such that input light polarization entering the PBS is rotated by .pi./2 by the polarization rotator 103.which is representing as a rotateable quarter wave plate because a quarter wave plate can introduces a phase difference of $\pi/2$ radians between perpendicular axes , [0075]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a rotatable quarter-wave plate (103) as taught by Han et al. into the system of Luscombe et al. so that quarter-wave plate can operable to adjust optical polarization of input. In this configuration the

system will have increased optical signal-to-noise ratio (OSNR), thus improving the system performance.

(2) Regarding claim 25:

Luscombe et al. further discloses wherein said polarization element is a state-of-polarization generator (a polarization element "scrambler" refers to a device that takes an arbitrary input state of polarization and rotates it continuously about the equatorial axis of the Poincare sphere. A scrambler is typically a device that employs the electro-optic effect in a lithium niobate crystal. The input beam is split into two orthogonal linear polarizations, corresponding to the two propagation modes in the crystal (the TE and TM modes of a dielectric wave guide)) (column 3, lines 26-35).

12 Claims 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over chung et al. (US pub. No: 2001/0052981).

As shown in fig. 5, Chung et al discloses a method comprising:

Regarding claim 30:

Obtaining a monitor beam ([0030], see fig. 5) from a fiber line ([0035], line 9 carrying WDM channels);

spatially separating WDM channels (demultiplexing at 56, WGR) from said monitor beam [0054], [0061],

separating each WDM channel into a first beam and a second beam (in fig. 5 we can see that the WDM channel passed through a waveguide grating router (WGR) 56,it is inputted to a 3-dB coupler 57 which divides the other part into two parts) with orthogonal polarizations in a way that noise power level in

said first beam is different from a noise power level in said second beam, (in the wavelength division multiplexed (WDM) optical transmission system in which respective optical signals can pass through different paths and a different number of erbium-doped fiber amplifiers (EDFAs) at any time, the ASE noise levels at the wavelengths of the respective optical signals may be different each other as shown in [0007]) (also see ([0054], [0061]),

adjusting polarization of each WDM channel prior to separation into said first and said second beams to find a maximum power level and a minimum power level in each of said first and said second beams [0061] determining a signal-to-noise ratio of each WDM channel in said monitor beam. () [0054] [0061]

Chung et al. discloses all of the subject matter except a degree of polarization of each beam. such limitation are merely would have been obvious in the system of "Chung".

Chung teaches that, the optical signal-to-noise ratio (OSNR) monitoring method uses a polarization-nulling phenomenon in which the arbitrarily polarized optical signal including the unpolarized ASE noise is inputted to the rotating quarter-wave plate which, in turn, linearly polarizes the inputted optical signal more than four times during the 360 degree rotation of the quarter-wave plate to output the linearly polarized optical signal. the light in both polarization modes should be substantially equalized with respect to intensity so that the light is substantially unpolarized by the time it reaches the coupler, 57 and is split into the two waves. It will be understood that presently available light sources

typically have both polarized and unpolarized components, so that the source light will have a degree of Polarization ([0053] [0054], fig 5).

Therefore, The limitations in claim 30 do not define a patentably distinct invention over that in "Chung" since the invention as a whole and "Chung" are directed to the optical signal-to-noise ratio (OSNR) monitoring method uses a polarization-nulling phenomenon in which the arbitrarily polarized optical signal including the unpolarized ASE noise is inputted to the rotating quarter-wave plate which, in turn, linearly polarizes the inputted optical signal more than four times during the 360 degree rotation of the quarter-wave plate to output the linearly polarized optical signal which will reduce phase error in the system . Therefore, to determine a degree of polarization of each WDM channel in the monitor beam "Chung" would have been a matter of obviousness to one of ordinary skill in the art.

Allowable Subject Matter

13. Claims 19-22 are allowed:

14. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art fails to disclose a first WDM demultiplexer to receive said first beam to separate different WDM channels in said first beam;

a second WDM demultiplexer to receive said second beam to separate different WDM channels in said second beam, wherein said first WDM demultiplexer is different from said second WDM demultiplexer in way that a noise power level in an output WDM channel from said first WDM demultiplexer

is different from a noise power level in the same WDM channel from said second WDM demultiplexer;

a first set of optical decoders located to receive different WDM channels from said first WDM demultiplexer.

a second set of optical detectors located to receive different WDM channels from said second WDM demultiplexer;

15. Claims 26-29 are objected to as being dependent upon a rejected base claim, but would be allowable if written in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art fails to disclose wherein said polarization element comprises:

first and second polarization rotators sequentially positioned in an optical path;

a quarter waveplate in said optical path to receive output light from said first and said second polarization rotators;

third and fourth polarization rotators sequentially positioned in said optical path to receive output light from said quarter waveplate, wherein each polarization rotator is adjustable in response to a control signal.

Conclusion

17. Any inquiry concerning this communication should be directed to the examiner at (571) 270-1673 Monday- Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu, can be reached at (571) 272-3036.

Information regarding the status on an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (tool-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9799 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of patents and trademarks

Washington, D.C. 20231

Or fax to:

(703)872-9314 (for Technology Center 2600 only)

Shaheda Abdin

03/12/2007

Shuwang Liu

SHUWANG LIU
SUPERVISORY PATENT EXAMINER